

**INDUCTION HEATING RICE COOKER**

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## **ABSTRACT.**

This thesis describes the development of High Frequency Inverter of Induction Heating Rice Cooker for heating iron, aluminium and steel vessel. A circuit model for the system work coil and an adequate drive circuit of the converter is designed.

In order to heat these kind of metal vessels, input resistance of exciting coils together with the various metal vessels (load) have been investigated and the optimum condition for a high frequency ( 15 kHz ) dc to ac power MOSFET inverter is determined.

The magnetic circuit has a few layers of coil that coiled around the metal vessel .

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## **INTRODUCTION.**

Induction heating is widely used in metal surface treatment industry. An induction heating can heat a metal cooking vessel directly due to a loss of eddy current.

The main idea is that, high frequency ( 15 kHz ) alternating a.c current flows in an exciting coil ( load ) produces varying magnetic field, which induces eddy currents on the surface of the metal vessel which generate eddy current losses.

This loss will heat up the metal vessel. The induction heating application has advantages such as high efficiency, cleanliness and safety.

Basically "A New Induction Cooking Ranges has been developed successfully by Teruya Tanaka of Japanese with input power range of 200W to 1.2KWatt at the A.C 100 V "[2]. His design shows that the inverter (SCR) has double layers coils placed at the bottom of metal vessel, with two resonance circuit capacitors and operated at 50KHz.

In this design, power MOSFET (IRF840) has been used as high frequency inverter with the expected operating frequency of up to more than 50KHz.

The copper coils are placed (coiled ) around the metal vessel.